

# इंटरनेट

# मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

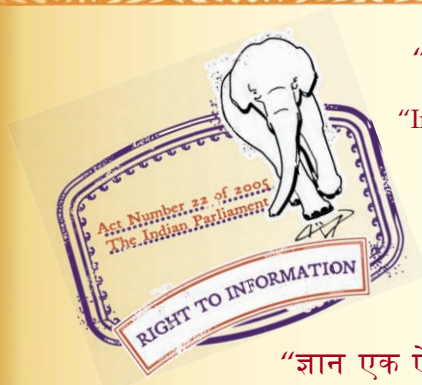
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 8271-2-10 (1984): Quartz Crystal Units Used for Frequency Control and Selection, Part 2: Series AA for Oscillators, Section 10: Quartz Crystal Unit Type AA-10 [LITD 5: Semiconductor and Other Electronic Components and Devices]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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Indian Standard



SPECIFICATION FOR  
QUARTZ CRYSTAL UNITS USED FOR FREQUENCY  
CONTROL AND SELECTION

PART 2 SERIES AA FOR OSCILLATORS

Section 10 Quartz Crystal Unit Type AA-10

**0. General** — This standard shall be read in conjunction with IS : 8271 ( Part 1 )-1981 'Specification for quartz crystal units used for frequency control and selection: Part 1 General requirements and tests ( first revision )'.

**1. Outline and Dimensions** — Holder outline shall conform to Type AA ( see Sheet 1A of IS : 4570-1968 Specification for crystal holders ).

**2. Marking** — See 8 of IS : 8271 ( Part 1 )-1981.

**3. Construction and Workmanship** — See 7 of IS : 8271 ( Part 1 )-1981.

**4. Test Schedule and Detail Requirements**

**4.1 General Conditions for Test** — See 9.2 of IS : 8271 ( Part 1 )-1981.

**4.2 Test Schedule** — The sequence and grouping of type, routine and acceptance tests shall be in accordance with 9.1 of IS : 8271 ( Part 1 )-1981.

**4.3 Detail Requirements** — The detail requirements applicable to this particular type of crystal unit shall be as specified in Table 1.

TABLE 1 DETAIL REQUIREMENTS OF QUARTZ CRYSTAL UNIT TYPE AA-10  
( Clause 4.3 )

SI No.	Characteristics	Requirements
(1)	(2)	(3)
i)	Type of holder	AA ( See 1 )
ii)	Frequency range	190 to 500 kHz
iii)	Frequency tolerance: Over operating temperature range	$\pm 20$ ppm
iv)	Frequency stability	$\pm 5$ ppm
v)	Resonance resistance	See Table 2
vi)	Mode of oscillation	Fundamental
vii)	Load capacitance	$20.0 \pm 0.5$ pF
viii)	Reference temperature	$75^{\circ}\text{C} \pm 1^{\circ}\text{C}$
ix)	Temperature range:	
a)	Operating	$+70^{\circ}\text{C}$ to $+80^{\circ}\text{C}$
b)	Operable	$- 40^{\circ}\text{C}$ to $+70^{\circ}\text{C}$
x)	Test set, calibration values and rated drive level	See Table 3
xi)	Shock [ in accordance with 9.15 ( Severity A ) of IS : 8271 ( Part 1 )-1981 ]:	
a)	Frequency change permitted	$\pm 5$ ppm
b)	Resonance resistance change permitted	$\pm 15$ percent
xii)	Vibration [ in accordance with 9.16.1 ( Severity A ) of IS : 8271 ( Part 1 )-1981 ]:	
a)	Frequency change permitted	$\pm 5$ ppm
b)	Resonance resistance change permitted	$\pm 15$ percent
xiii)	Temperature cycling:	
a)	Frequency change permitted	$\pm 10$ ppm
b)	Resonance resistance change permitted	$\pm 15$ percent
xiv)	Temperature run:	
a)	Frequency change permitted	$\pm 5$ ppm
b)	Resonance resistance change permitted	$\pm 15$ percent
xv)	Bond strength	See Table 4

TABLE 2 RESONANCE RESISTANCE  
[ Table 1, Item (v) ]

Frequency Range	Maximum Resonance Resistance
kHz	ohms
(1)	(2)
From 190 to 225	5 300
Over 225 to 275	6 000
Over 275 to 325	6 500
Over 325 to 375	7 000
Over 375 to 425	7 500
Over 425 to 475	8 000
Over 475 to 500	8 500

**TABLE 3 TEST SET, CALIBRATION VALUES AND RATED DRIVE LEVEL**

[ Table 1, Item (x) ]

SI No.	Frequency Range MHz	Calibration Values		Rated Drive Level mV	Test Set
		Resistance ohms	Resistor Voltage Drop V		
(1)	(2)	(3)	(4)	(5)	(6)
i)	From 190 to 225	3 700	2.72	2.0 ± 0.4	TS-710/TSM
ii)	Over 225 to 275	4 200	2.90		
iii)	Over 275 to 325	4 600	3.03		
iv)	Over 325 to 375	4 900	3.13		
v)	Over 375 to 425	5 300	3.26		
vi)	Over 425 to 475	5 600	3.35		
vii)	Over 475 to 500	6 000	3.46		

**TABLE 4 BOND STRENGTH**

[ Table 1, Item (xv) ]

Frequency Range kHz	Minimum Bond Strength N
(1)	(2)
From 190 to 250	7
Over 250 to 320	5
Over 320 to 370	4
Over 370 to 435	3
Over 435 to 500	2.5

**EXPLANATORY NOTE**

This standard ( Part 2/Sec 10 ) covers the requirements of crystal unit, quartz, style QC-05 of JSS 50903 ( 1971 ) 'Detail specification for crystal unit, quartz, styles QC-05, QC-06, QC-07 and QC-08', issued by the Directorate of Standardization, Ministry of Defence ( India ).